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ABSTRACT

In multigrade instruction, children of at least a 2-year grade span and diverse ability levels are grouped in a single classroom and share experiences involving intellectual, academic, and social skills. "The Multigrade Classroom" is a seven-book series that provides an overview of current research on multigrade instruction, identifies key issues teachers face in a multigrade setting, and offers a set of resource guides for multigrade teachers. Book 1 synthesizes research findings that compare multigrade and single-grade elementary classrooms with regard to various cognitive and noncognitive outcomes. Quantitative studies of academic achievement and student attitudes indicate that the multigrade classroom does not negatively affect students' academic performance, social relationships, or attitudes. Multigrade students do particularly well on measures of student affect. Qualitative studies of multigrade classrooms point to principal leadership, teacher beliefs, school climate, and sufficient time and money as essential ingredients for success. A table outlines what teachers and administrators need to know about multigrade instruction, and steps are listed for setting up multigrade classrooms. Classroom, school, and sociocultural factors unique to rural, small schools are listed. Studies involving multigrade instruction are reviewed. Key variables affecting multigrade teaching and administrative concerns are identified. (Contains 67 references.) (SV)

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A Resource for Small, Rural Schools

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Book 1: Review of the Research on Multigrade Instruction

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Northwest Regional Educational Laboratory

THE MULTIGRADE CLASSROOM: A RESOURCE HANDBOOK FOR SMALL, RURAL SCHOOLS

Book 1: Review of the Research on Multigrade Instruction

November 1999

Rural Education Program

Based on the September 1989 publication
of the same title written by Bruce A. Miller

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Overview

Preface

The preface describes the process used in developing this handbook, including the multigrade teachers who shared their classroom strategies and ideas for improving the usefulness of the handbook.

Introduction

The history of multigrade classroom instruction is presented, along with the background information that describes why multigrade instruction is an important and complex issue for educators.

Book 1: Review of the Research on Multigrade Instruction

In this book, the research on multigrade instruction is reviewed in order to answer two questions: (1) What effect does multigrade instruction have on student performance? and (2) What kind of training is needed in order to teach in a multigrade classroom? Detailed information focusing on organizing and teaching in a multigrade classroom is also presented.

Book 2: Classroom Organization

This book describes strategies for arranging and organizing instructional resources and the physical environment of the classroom. Sample classroom layouts and a "design kit" for organizing your classroom are also included.

Book 3: Classroom Management and Discipline

Establishing clear expectations for student behavior and predictable classroom routines has been shown to improve student performance. In this book, research relating to classroom management and discipline are presented, along with a checklist for planning management routines and discipline procedures.

Book 4: Instructional Organization, Curriculum, and Evaluation

Research-based guidelines for planning, developing, and implementing instructional strategies are presented. This book emphasizes the development of cooperative work norms in the multigrade classroom and explains how to match instruction to the needs of students. An overview of curriculum and evaluation planning concepts is also provided. This book is a close companion piece with book 5: Instructional Delivery and Grouping.

Book 5: Instructional Delivery and Grouping

This book emphasizes that instructional quality and student grouping are key components for success in the multigrade classroom. Instructional methods such as recitation, discussion, and cooperative learning are reviewed. Planning guides and examples are also included where appropriate. Strategies for organizing group learning activities across and within grade levels, especially those that develop interdependence and cooperation among students, are discussed.

Book 6: Self-Directed Learning

Developing skills and strategies in students that allow for a high level of independence and efficiency in learning, either individually or in combination with other students, is essential in the multigrade classroom. Ideas for developing self-direction are presented in this book.

Book 7: Planning and Using Peer Tutoring

This book provides guidelines for developing skills and routines whereby students serve as "teachers" to other students within and across differing grade levels. The research on what makes for effective tutoring in the classroom is also reviewed.

Preface

The development of this handbook began in 1987, when a group of people involved in rural education raised several issues regarding multigrade classroom instruction.

In their discussions, members of the advisory committee for the Northwest Regional Educational Laboratory's (NWREL) Rural Education Program agreed that multigrade teacher training in their respective states was either lacking or wholly inadequate. They also were concerned about the availability of research and training materials to help rural multigrade teachers improve their skills.

As a result of these concerns, the Rural Education Program decided to develop a handbook to assist the multigrade teacher. The handbook evolved in several stages. The first was a comprehensive review, conducted by Dr. Bruce Miller, of the research on multigrade instruction that included articles, books, and research reports from the United States, Canada, Australia, and other countries.

From this review, six topic areas emerged that are considered essential for effective multigrade instruction: classroom organization; classroom management and discipline; instructional organization, curriculum, and evaluation; instructional delivery and grouping; self-directed learning; and planning and using peer tutoring. Dr. Miller developed the handbook around these six instructional areas, and a draft was completed in June 1989, with support from the Office of Educational Research and Improvement (OERI).

The second stage occurred in July 1989, when a conference was held in Ashland, Oregon, with multigrade teachers who were recommended by educational leaders from throughout the Northwest and Pacific Island regions.

During the conference, participants were organized into workgroups, each focusing on one of the topic areas. Their tasks were to review the appropriate handbook chapter for clarity and content, to suggest alternative and/or additional instructional strategies to those presented in the handbook, and to write case descriptions of activities drawn from their classrooms. For example, Joel Anderson from Onion Creek Elementary in Colville, Washington, described how he grouped students for cooperative learning. Darci Shane from Vida, Montana, presented a school handbook she had developed for parents that included a class schedule and other school-related information. (A full list of participants appears at the end of this preface.) The final handbook was completed by Dr. Miller in September 1989.

Based on the growing interest and research on multigrade instruction the handbook was revised and updated in 1999, also with support from OERI. The final version, completed with support from the Institute of International Education (IIE), is now composed of a series of seven stand-alone books.

Book 1: Review of the Research on Multigrade Instruction
Book 2: Classroom Organization
Book 3: Classroom Management and Discipline
Book 4: Instructional Organization, Curriculum, and Evaluation
Book 5: Instructional Delivery and Grouping
Book 6: Self-Directed Learning
Book 7: Planning and Using Peer Tutoring

Purpose and Scope of the Handbook

The handbook has been written to serve three general purposes:

- To provide an overview of current research on multigrade instruction
- To identify key issues teachers face when teaching in a multigrade setting
- To provide a set of resource guides to assist novice and experienced multigrade teachers in improving the quality of instruction

However, because of the complexity of multigrade instruction and the vast amount of research on effective classroom instruction, this handbook can only serve as a starting point for those educators wanting to learn new skills or refine those they already possess.

Each book of the series presents information, strategies, and resources considered important for the multigrade teacher. While all the books are related, they also can stand alone as separate documents. For example, the books on Classroom Organization (Book 2) and Classroom Management and Discipline (Book 3) contain overlapping information. Ideally, these two books are best utilized together. The same is true of the books on Instructional Organization, Curriculum, and Evaluation (Book 4) and Instructional Delivery and Grouping (Book 5). Wherever possible, these relationships have been noted in the appropriate books.

In conclusion, the series of books has been designed to be used as a research-based resource guide for the multigrade teacher. It covers the most important issues the multigrade teacher must address to be effective in meeting the needs of students. Sample schedules, classroom layouts, resource lists, and strategies aimed at improving instruction have been used throughout. It is our hope that the handbook will raise questions, provide answers, and direct the multigrade teacher to resources where answers to other questions can be found.

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Introduction

In contrast to a historical pattern of children developing within an age-varied social system, many children today spend a majority of their time in an age-segregated milieu (Katz, Evangelou, & Hartman, 1990; McClellan, 1994). The results of this pattern of segregation are thought to contribute to a declining social support system and compromised development of children's social and academic skills.

Coleman (1987) suggests the need for a significant institutional and societal response to support functions traditionally filled by the family, such as the development of feelings of belonging and community, emotional and social bonding, and nurturance. Increasingly, the school has been viewed as one of the most effective and efficient contexts to address children's academic, affective, and social needs before these needs reach crisis proportions.

A growing body of research explores the influence of educational contexts on children's development. While interest has focused on the impact of the classroom environment on children's attitudes toward school, cognitive growth, and academic development, less direct attention has been given to the relationship between classroom context (including the structure and content of children's peer relationships) and academic and social development during the elementary years. One approach explored by theoreticians and researchers for encouraging children's academic and social skill development is multigrade instruction.

In multigrade instruction, children of at least a two-year grade span and diverse ability levels are grouped in a single classroom and are encouraged to share experiences involving intellectual, academic, and social skills (Goodlad & Anderson, 1987; Katz et al., 1990; McClellan & Kinsey, 1996). Consistency over time in relationships among teachers, children, and parents is viewed as one of the most significant strengths of the multigrade approach because it encourages greater depth in children's social, academic, and intellectual development. The concept of the classroom as a "family" is encouraged, leading to expansion of the roles of nurturing and commitment on the part of both students and teacher (Feng, 1994; Hallion, 1994; Marshak, 1994).

The potential academic and social implications of the multigrade concept of education are strongly supported by extensive research demonstrating the importance of peers in children's academic and social development, and by studies of reciprocity theory, which demonstrate the positive effect on child academic and social behavior of sustained close relationships between children and caregivers (Kinsey, 1998; Maccoby, 1992).

The adequate implementation of a multigrade approach to education extends beyond simply mixing children of different grades together. A positive working model of a multigrade classroom allows for the development of academic and social skills as the teacher encourages cross-age

interactions through tutoring and shared discovery. Social competence develops for older children out of their roles as teachers and nurturers, and for younger children out of their opportunity to observe and model the behavior of their older classmates (Katz et al., 1990; Ridgway & Lawton, 1969).

The multigrade classroom has traditionally been an important and necessary organizational pattern of education in the United States, notes Miller (1993). Multigrade education dates back to the one-room schools that were the norm in this country until they were phased out in the early part of the 1900s (Cohen, 1989; Miller, 1993). From the mid-1960s through mid-1970s, a number of schools implemented open education, ungraded classrooms, and multigrade groupings. Although some schools continued to refine and develop the multigrade concept, many of these programs disappeared from public schools. With the beginning of the industrial revolution and large-scale urban growth, the ideal of mass public education took root and the practice of graded schools began in earnest.

The graded school system provided a means of organizing and classifying the increased number of urban students of the 1900s. Educators found it easier to manage students by organizing them into age divisions or grades. Other factors, such as the advent of the graded textbook, state-supported education, and the demand for trained teachers, further solidified graded school organization (Miller, 1993; Uphoff & Evans, 1993). Critics of the graded school were quick to emphasize this deficiency. The realization that children's uneven developmental patterns and differing rates of progress are ill-matched to the rigid grade-level system has resulted in a growing interest in and study of the potential benefits of multigrade education in recent years (Miller, 1996). This growing interest is due to a greater focus on the importance of the early years in efforts to restructure the educational system (Anderson, 1993; Cohen, 1989; Stone, S.J., 1995; Willis, 1991) and an awareness of the limitations of graded education.

The multigrade classroom is labor intensive and requires more planning, collaboration, and professional development than the conventional graded classroom (Cushman, 1993; Gaustad, 1992; Miller, 1996). Sufficient planning time must be available to meet the needs of both teacher and students. Insufficient planning, staff development, materials, support, and assessment procedures will have an impact on the success of the multigrade program (Fox, 1997; Miller, 1996; Nye, 1993).

Despite these constraints, there are special advantages to multigrade classrooms. Flexible schedules can be implemented and unique programs developed to meet students' individual and group interests and needs. Combined classrooms also offer ample opportunity for students to become resourceful and independent learners. The multigrade rural classroom is

usually less formal than the single-grade urban or suburban classroom. Because of the small class size, friendly relationships based on understanding and respect develop naturally between the students and the teacher. In this setting, students become well-known by their teacher and a family atmosphere often develops.

However, many teachers, administrators, and parents continue to wonder whether multigrade organization has negative effects on student performance. For most rural educators, multigrade instruction is not an experiment or a new educational trend, but a forceful reality based on economic and geographic necessity. In a society where educational environments are dominated by graded organization, the decision to combine grades is often quite difficult. The Rural Education Program of the Northwest Regional Educational Laboratory receives numerous requests from rural educators with two overriding concerns regarding multigrade classrooms:

- What effect does multigrade instruction have on student performance?
- What kind of preparation or training is needed to be an effective teacher in a multigrade classroom?

This handbook will provide answers to these questions and develop an overview of key issues facing school districts and teachers involved in or contemplating multigrade classrooms.

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Review of the Research on Multigrade Instruction

Any indication that one is involved in an investigation concerning multigrade classes arouses intense interest among parents, even grandparents, of preschoolers and children of primary school age. Questions and comments abound. The matter is one of much significance and practical importance to them. It is also of considerable professional interest to educators and of theoretical as well as professional interest to educational researchers. For parents, the critical issue is whether the multigrade classroom will provide the kind of positive, satisfying, and productive social and learning experience they want for their child in school. For teachers and school leaders, there are multiple issues: whether enrollment distributions necessitate multigrade classes; the nature of parental, teacher, and school leader attitudes to multigrade classes; how best to organize and teach such classes in order to maximize student learning progress and social development. For researchers, the major focus for many years has been the question of whether student achievement differs in multigrade and single-grade classes.

The multigrade class structure is known by various names in different countries; these include "composite" or "combination" classes, "double" classes, "split" classes, "mixed-age" classes and "vertically grouped" classes (Veenman, 1995). It is defined as a class in which students of two or more adjacent grade levels are taught in one classroom by one teacher for most, if not all, of the day. Such multigrade classes are embedded within the traditional graded system: students retain their grade-level labels and are promoted through the school with their grade-level cohort (Mason & Burns, 1996; Veenman, 1995). For Mason and Burns and for Veenman, the definition also implies that grade-level curriculum and achievement expectations will be retained.

Both Veenman (1995) and Mason and Burns (1996) distinguish between the multigrade class and two other structures: the multiage class and the nongraded school. The latter two structures have an individualized, developmental focus and manifest in a continuous progress rather than lock-step, graded curriculum for class groups of students varying in age. Student groups remain with the same teacher for two or more years. Both researchers view the multigrade class structure as arising from administrative and economic necessity (unequal grade-level enrollment numbers, together with fixed staff-student ratios), in contrast to the multiage grouping, which is seen to result from a deliberate decision based on a particular pedagogical and philosophical approach.

This book presents a synthesis of research findings into the cognitive and noncognitive effects of multigrade and single-grade classrooms in elementary schools. Included are studies that involve the evaluation of the effects of multigrade or multiage grouping. Multigrade and multiage grouping have been clearly distinguished in order to avoid an "apples and oranges" problem at the level of the independent variable. The studies have

also been grouped as relevant to two major dependent variables: (1) academic or cognitive achievement, and (2) noncognitive growth. The first area of relevance is further divided into the academic subjects addressed; for example, reading, language, mathematics, science, and social studies. The second area of relevance is further divided into personal adjustment, social adjustment, self-concept, attitudes toward school, and motivation.

Methodological Inclusion Criteria

Experimental and control groups — All studies possessed both experimental (multigrade or multiage) and control (single-grade or single-age) groups.

Standard measures — In all studies, standard measures of academic achievement or nonacademic achievement were used. Grades and report card scores were not included as achievement variables because of their subjective nature. Noncognitive variables were excluded if they were not based on some objective standard of measurement.

Comparability of samples — Ideally, initial comparability of the experimental and control samples was established by means of matching of schools or classes, or matching of individual students within classes or schools.

Duration of multigrade grouping — In all of the included studies, the multigrade groups examined had existed for at least one year.

Normality of sample — All included studies involved samples of normal students in regular classes.

Teacher training — In all included studies, teachers in the experimental group had not been trained on the dependent measures.

Number of teachers — At least two experimental and two control teachers were involved in all of the studies included in this review.

Quantitative Studies: Student Achievement

In recent years some significant studies have been published that systematize and evaluate the research on the effects of multigrade classes on student achievement, as well as ones that investigate the processes that contribute to these effects. Veenman's (1995) best-evidence synthesis of research concerning the cognitive and noncognitive effects of multigrade and multiage classes was a thorough and well-documented meta-analysis and description of a large number of studies (45 of which were concerned with multigrade classes), drawn from a wide range of countries and nations across the world, both developed and developing.

Veenman found that there were no consistent differences in student achievement between multigrade and single-grade classes. The overall median effect size for cognitive outcomes was 0.00, while the overall median effect size for affective outcomes was +0.10. On the basis of his findings, Veenman drew the conclusion that:

> *... parents, teachers, and administrators need not worry about the academic progress or social-emotional adjustment of students in multigrade or multiage classes. These classes are simply no worse, and simply no better, than single grade or single-age classes (Veenman, 1995).*

Four factors were proposed by Veenman to help explain the finding of no difference in student achievement between multigrade and single-grade classes:

- Grouping alone is unlikely to have an effect; learning is more dependent on the quality of teaching than on organizational structure
- Bias in selecting more capable students into multigrade classes, if it occurs, would deplete the proportion of those students in single-grade classes, producing nonequivalent samples for comparison
- Teachers of multigrade classes are inadequately prepared for teaching such classes and do not have available suitable materials for their teaching
- Multigrade teaching is demanding and leaves teachers with little energy to pursue potentially more effective grouping strategies in their teaching, resulting in the use of the same practices as in single-grade classes

The quality of the research reviewed by Veenman was not consistently strong, and the justification for inclusion of some of the studies in his analysis is doubtful. Mason and Burns (1996), having themselves reviewed the research into the differential effectiveness of multigrade and single-grade classes, did not dispute Veenman's finding of nonsignificant differences in achievement and slightly more positive though nonsignificant social-emotional

effects of multigrade classes. However, their conclusion was different; they claimed that multigrade classes have at least a small negative effect.

They argued that multigrade classes generally have better students and perhaps better teachers allocated to them (a possibility that Veenman acknowledged in his first paper [1995, pp. 327–328, 371], but subsequently claimed was not yet established [1996]). These factors should produce more positive outcomes for multigrade classes, both because multigrade classes would be systematically advantaged and also because single-grade classes would consequently be systematically deprived of better students and teachers. Why then are there multigrade classes found to have similar or slightly negative effects when compared to single-grade classes?

Mason and Burns (1996) asserted that the reason must lie in the more complex and difficult teaching situation that multigrade classes present, for example in terms of the greater workload and the need for more preparation time and better management skills (factors acknowledged by Veenman [1995, 1996]), together with a consequent increase in teacher stress.

Teachers are therefore faced with delivering two different curricula to students of twice the age range in the same amount of time-factors, which make these two structures radically different. Our question is, why wouldn't we expect multigrade classes to be more difficult for teachers and result in different and less effective instructional practices? (Mason & Burns, 1996)

In their view, lower quality, less effective teaching is characterized by less instruction time per grade-level group, less time to assist individual students and meet their needs, and reduced curriculum coverage, especially in areas beyond the basic skills.

Mason and Burns argued that the effects of lower quality instruction in multigrade classes are offset by the better students and teachers allocated to them, resulting in no significant achievement differences between multigrade and single-grade classes. They also argued that instead of eliminating the potential negative effects of multigrade classes on student achievement, the assignment of better students and teachers to these classes actually masks these effects because it diminishes the quality of students and teachers in single-grade classes in the same school. The lower achievement outcomes of the disadvantaged single-grade classes are the ones with which multigrade outcomes are compared.

The Mason and Burns case rests to a large extent on the question of whether there is a student and teacher selection bias in favor of multigrade classes. It is somewhat ironic that in a study of California multigrade classes conducted by Mason and Burns (1995), there is evidence that major administrative constraints prevent many principals from purposeful placement of students in multigrade classes.

In one of the largest matched-equivalent studies Rule (1983) examined the effects of multigrade classes on student achievement in reading and mathematics in grades 3–6 in Arizona. Each multigrade class was formed from students at two consecutive grade levels. Three grouping patterns were studied: multigrade classes, single-grade classes in multigrade schools, and single-grade classes not in multigrade schools. In addition, the achievement levels of students in differing ability groups were analyzed. Three types of placement in multigrade classes were distinguished: high placement, average/high placement, and average placement. Multigrade classes with high-achieving students included students from the upper third in academic achievement, which was primarily a measure of reading achievement for both grades. For example, high-achieving second-graders were placed with high-achieving third-graders. A multigrade average/high class contained students from the middle and upper thirds in academic achievement in both grades. A multigrade average class combined average students from the lower grade with average students from the upper grade. The districts under study were forced to use multigrade classes in order to economize and to equalize class loads. Overall, the multigrade classes did not appear to affect reading and mathematics achievement negatively (total ES = + .01). The average/high placement appeared to be best for all grades for reading and for grades 4–6 for mathematics.

In a carefully matched study, Stone (1987) examined the possible effects of multigrade class placement on mathematics, reading, language, science, and social studies achievement in a large suburban school district in the United States. The multigrade classes were formed as a result of unequal enrollments and contained students from grades 2–3. The results showed no significant differences between the multigrade students and the single-grade students in overall achievement (total ES +.20).

Kral (1995) examined the effects of multigrade versus single-grade classes on mathematics, language, and reading performance of second-, fourth-, and sixth-grade students in Denmark. The achievement gains of students in small schools (fewer than 110 students) versus large schools (more than 250 students) were of particular interest in this study. The small (urban and rural) elementary schools instructed their students in multigrade classes encompassing two or three grade levels, while the large schools instructed their students in single-grade classes. As in the study by Brandsma (1993), a multigrade approach was used and, for the purposes of the present review, the data were reanalyzed using ANOCA with pre-achievement, IQ, and socioeconomic status as covariates. No systematic differences were found between the combination and single-grade class (total ES = -.06). Also, examination of teacher questionnaires and logs revealed no differences in the instructional time devoted to language, mathematics, and reading. The number of years spent in multigrade classes was not found to be associated with differences in achievement.

Barbara Pavan (1992), a researcher and professor of educational administration at Philadelphia's Temple University, chose 64 studies conducted after 1967 for her review. Seven descriptors were used to search for the studies: nongraded, continuous progress, multiunit, individually guided education, multigrade, ungraded, and mixed age. To be included in this review, students in graded and nongraded schools with similar populations had to be compared using standardized test measures, or nongraded students had to be tested before and after the implementation of a nongraded program. Accepted for analysis were elementary school studies conducted in the United States and Canada for at least one academic year. The studies included all subject areas and covered more than one classroom.

Standardized tests were used in 57 of the studies, and the studies usually reported data from one year. Fifty-two (91 percent) of these studies indicated that for all comparisons, the multigrade groups performed better than (58 percent) or as well as (33 percent) the graded groups on measures of academic achievement. In only 9 percent of the studies did the students perform worse. It seems rather remarkable that pupils in multigrade schools scored well. Multigrade schools respond to individual differences by adjusting curriculum and thus may not cover what traditional textbooks do. As such, multigrade students may not be exposed to all the material that single-grade students cover. Yet, multigrade students overwhelmingly performed as well as or better than single-grade students on achievement tests emphasizing mastery of content that is generally the primary focus of the multigrade school.

Longitudinal studies

While most of the research studies reported data from one year, 17 studies presented data over a number of years. In those studies, students completing multigrade primary programs had higher academic achievement than those in single-grade schools. More pupils attending multigrade primary schools started fourth grade with their entering class than did children from traditional grade-designated classrooms. This happens because there is no retention in a primary program. Students in multigrade intermediate programs had higher or similar academic achievement, more positive attitudes toward school, and similar self-esteem than those in single-grade programs.

Seven studies compared students who had spent their entire elementary school years in the same multigrade school with those who spent the same years in a traditional single-grade school. Those studies that reported academic achievement found superior performance by multigrade students.

At-risk students

In 18 of the research reports, data were analyzed for various populations—Black students, underachievers, students of low socioeconomic status, and boys, who seem to experience more difficulty in the early years of learning and are often considered at risk. With the exception of one study, boys in multigrade schools scored better on achievement tests than boys in single-grade schools.

In a 1992 review of research presented at the American Educational Research Association Conference on the achievement effects of the nongraded elementary school, Robert Guiterrez and Robert Slavin had findings consistent with those of Barbara Pavan. In addition, they also compared effect sizes for each study to characterize the strength of the effects, and broke the study into four main categories according to program characteristics. Very different effects were found according to these characteristics. The most positive achievement effects were for the simpler forms of nongrading generally evaluated during the 1960s, early in the nongraded movement. They found a median effect size of +.46 for programs in which only one subject (almost always reading) was nongraded. These programs strongly resemble the Joplin Plan, cross-grade grouping for reading. They also calculated a median effect size of +.34 for nongraded programs that incorporated multiple subjects but still primarily involved cross-grade grouping, not other elements.

In 1970, as the multigrade programs became more complex, they began to incorporate individualized instruction, and to become more like open schools. Thus, the achievement effects began to be much smaller. For programs incorporating individualized instruction, they found a median effect size of essentially zero (+.02). Effects of individually guided education were only slightly more positive (ES = + .11).

In conclusion, Guiterrez and Slavin's research suggests that the effectiveness of multigrade elementary programs depends in large part on the features of the program, especially the degree to which nongrading is used as a grouping method rather than as a framework for individualized instruction. It is hard to know how relevant these findings are to the conditions of today, when curriculum and instruction are changing rapidly. Yet, at least they provide a cautionary note.

In a similar study by Barbara Nye (1993), a senior research scientist and executive director of the Research and Policy Center on Basic Skills at Tennessee State University in Nashville, 1,500 Tennessee students from kindergarten through fourth grade in multigrade classrooms were tracked. In the seven schools that participated, children worked in small, flexible groups that were mixed in terms of age and ability. Students progressed at their own speed, and the learning was more hands-on and less reliant on textbooks than in traditional classrooms. Two years into the study, Nye stated that her analysis showed that students were doing as well or better in terms of both academics and self-concept (Viadero, 1996).

Based on current and extensive research on multigrade instruction, three states have already mandated that the primary schools become nongraded. Kentucky, Mississippi, and Oregon have mandated multigrade groupings at the primary level (Gutloff, 1995), and several other states are currently exploring the idea.

Kentucky issued its Education Reform Act, which mandated multigrade primary schools, in 1990. At the time Kentucky issued the Kentucky Education Reform Act, it was dealing with failing school systems. The Kentucky Department of Education found that by fourth grade, more than 20 percent of its primary population had been retained. It also found that it was not uncommon for schools to have a 25 percent dropout rate (Steffy, 1993). The department of education felt that drastic measures needed to be taken. This meant researching and revamping the Kentucky education system. The Kentucky Department of Education, after a great deal of research, issued a primary school position statement as follows:

An appropriate primary program for all children recognizes that children grow and develop as a "whole," not one dimension at a time or at the same rate in each dimension. Thus, instructional practices should address social, emotional, physical, aesthetic, as well as cognitive needs. The primary program flows naturally from preschool programs and exhibits developmentally appropriate educational practices. These practices allow children to experience success while progressing according to unique learning needs and also enables them to move toward attainment of the educational goals and capacities of the Kentucky Education Reform Act in an environment which fosters a love of learning (Steffy, 1993).

The Kentucky Education Board decided that the best way to achieve this was through multigrade instruction. At the time the Kentucky Education Reform Act went into effect, the secondary schools were unaffected. They felt they first needed to study how these transformations of education would affect the primary and middle school before making changes to the secondary schools.

What does the research that Kentucky and other states looked into say about multigrade classrooms? There still seem to be many conflicting ideas about the benefits of multigrade instruction. However, most of the research does point to some very positive benefits of multigrade practices, if they are dealt with in the true sense of the word. In Kentucky, results from the state's testing program are in after three years of the mandated multigrade classrooms. The tests show that fourth-graders' reading and writing scores are improving more rapidly than those of eighth- and 12th-graders. Of these three age groups, only the fourth-graders have been legally required to be taught in multigrade classrooms (Viadero, 1996).

The University of Louisville's Center for Gifted Students also did a study comparing the achievement of four Kentucky primary school multigrade classes with students in out-of-state, traditional, one-grade settings. Researchers tried to match these classes geographically and economically. The study found that 20 percent of the students in the Kentucky classrooms significantly outscored the out-of-state students on standardized tests in four areas: word identification, reading comprehension, mathematical calculation, and mathematical problem solving (Viadero, 1996).

The Victorian Quality Schools Project

Two research questions provided the focus for the Victorian Quality Schools Project (VQSP), a large research-and-development-project undertaken in Victoria, B.C., from 1992 to 1995.

- What are the characteristics of schools in which students make rapid and sustained progress in literacy (English) and mathematics, after adjusting for their intake factors and initial levels of achievement?
- What are the characteristics of schools in which there are positive student attitudes and behaviors, positive perceptions by teachers of their work environment, and high levels of parent participation and satisfaction with their child's schooling?

Details of the longitudinal quantitative study and its results may be found in Rowe, Hill, & Holmes-Smith, 1994, and Rowe, Hill, & Holmes Smith, 1995.

The study was based on a two-stage stratified probability sample of schools in the three educational sectors in Victoria: government, independent, and Catholic. Schools were randomly selected at the first stage with probability proportional to their enrollment size; at the second stage, the entire cohorts of students in grades K, 2, 4, 7, and 9 in each of the selected schools were included in the sample. Repeated measures were obtained on these five-year-level cohorts over a three-year period, resulting in student data for each of the compulsory years of schooling. In the first year of the study, useable data were obtained from 90 (including 59 primary schools) of the 96 schools that had initially agreed to participate, with an achieved sample comprising 13,909 students and 931 teachers. A student sample attrition rate of about 10 percent occurred between 1992 and 1993, with a subsequent further loss between 1993 and 1994 of 8.5 percent.

The full database for the project is extensive; variables measured include students' achievement and value-added progress in literacy and mathematics, home background characteristics, student behavior, student attitudes and opinions, classroom organization, teacher participation in professional development, parent opinion, teacher affect and perceptions of the work environment, and (in 1993 and 1994) aspects of leadership. The results obtained from statistical analysis of the quantitative data enabled some generalized models of teacher and school effectiveness to be developed.

A qualitative, follow-up case study was undertaken of selected VQSP schools in order to "validate" several aspects of the generalized models concerning teacher effects on student learning, attitudes, behavior, and leadership effects on teacher attitudes, perceptions, and effectiveness, as well as to illuminate the processes that might be in operation. Because

the quantitative study had produced an interesting and puzzling result in relation to student achievement in multigrade classes, this became one of the aspects pursued in the qualitative study. The two relevant research questions were:

- Does class composition based on more than one year level have a negative effect on student progress in English and mathematics?
- Does differentiated teaching reduce the negative effect on student progress in English and mathematics of belonging to a class composed of students at more than one year level?

The intention was to explore teacher and school leader understandings and experiences of multigrade classes to see whether potential explanations might emerge, which could then be tested in subsequent quantitative research.

A sample of six primary schools was selected from among those primary schools that had participated in the VQSP. The qualitative study was confined to primary schools for two reasons: First, some of the most interesting and important findings of the VQSP related to the primary school; and second, time/cost demands of the case study approach precluded the investigation of a sample large enough to include both primary and secondary schools. Selection of the six schools was based on schools' mean value-added learning progress scores in English and mathematics for the years 1992–93 and 1993–94. Two schools were selected that had consistently high mean achievement scores, two with consistently low mean scores, and one with consistently middle-level mean scores. The case study coordinator and fieldworkers were blind to the previous performance of the schools. The sample comprised schools from two systems (government and Catholic), from a range of locations (urban, outer urban, and semi-rural), and schools ranging in size from small (125 children, eight staff) to large (525 children, 27 staff).

In each school, four school leaders (principal, assistant principal, and the two staff members holding the next most senior positions) and four teachers (teachers of the Year 3 and Year 5 classes that formed the student sample) were interviewed. Semi-structured interview schedules included questions relating to the three main aspects of multigrade and single-grade classes: policy and practice regarding multigrade classes and their composition, perceptions of the relative ease or difficulty of student learning in multigrade classes, and teaching/learning strategies used in multigrade classes.

Interview responses were transcribed (not verbatim) from the tape recordings and, following the methodology of Miles and Huberman (1994), were used to establish within-site matrices relating to each research question and, subsequently, across-site matrices.

Results

The quantitative study

A multivariate, multilevel model of student progress in literacy (adjusted for grade level and prior achievement) was developed based on the 1992–93 data. It revealed, among other things, a strong, direct negative effect of being in a multigrade class. The standardized coefficient for multigrade class in 1993 was -0.271, statistically significant beyond the $p < .05$ level by univariate two-tailed test. In mathematics the effect, although negative, was not significant. In contrast to the 1993 results, the effect of multigrade class on students' learning progress in 1994 was not significant, though again still negative. Detailed information about the intricate and interesting multilevel, multivariate modeling in which these results are embedded may be found in Hill and Rowe (1998).

Why was the effect so short-lived or, possibly, so unstable? The suggested explanation given was that:

> *... extended discussions were held with all participating schools following the finding of a negative effect at the end of 1993 and that as a result, schools closely examined teaching practices in multigrade classes with a view to identifying ways in which they had become less effective than single-grade classes (Hill & Rowe, 1998, p. 326).*

It was also pointed out that the 1994 results were more in line with recent research literature, such as the results of the meta-analysis reported by Veenman (1995). For schools that must establish multigrade classes, it is not sufficient to know whether or not research results in general show a significant or nonsignificant negative effect on learning progress. As indicated earlier, many teachers prefer not to teach multigrade classes and, in general, parents do not wish to have their children taught in multigrade classes. Regardless of whether these preferences are justified in terms of research results about student learning, schools experience the pressures arising from them. Schools participating in the VQSP needed to understand the explanation for the short-lived or unstable effect of multigrade classrooms on student learning progress found in the VQSP data. The case studies offered the opportunity to explore school perceptions and understandings.

In contrast to the sophisticated statistical analyses on which the results of the quantitative phase of the VQSP are based, the qualitative results are based on the conceptual analysis of the perceptions, preferences, opinions, and knowledge communicated by individuals during case study interviews. The results are expressed in the form of category content, frequencies, and percentages. It is noted that the results relating to specific issues were at times based on a relatively limited sample and on perceptions rather than observations of actual practice, since the purpose of this phase of the study was to develop potential understandings and explanations of processes that could be tested quantitatively at a future time. The results are not necessarily representative of Victorian schools.

The qualitative study

The complexity of multigrade instruction is even more pronounced in developing nations. In 1988, United Nations Educational, Scientific and Cultural Organization (UNESCO) held a conference with representatives from India, Korea, Maldives, Nepal, Thailand, Philippines, Sri Lanka, and Indonesia. The conference focused on innovative approaches to teaching disadvantaged groups and teaching in the multigrade classroom. The problems and learning difficulties created by multigrade instruction were nearly similar for each country. Differences primarily related to financial, geographic, and demographic variables.

Multigrade classes in these countries tend to have large numbers of students and few teachers. The most common pattern of organization is the two-grade combination class. However, three or more grades per classroom were common to all countries. Of the eight countries represented, none indicated they had "single-grade" schools with more than four grades. For example, an individual teacher may have a classroom of 30 fourth-graders and 27 fifth-graders or a classroom of 35 students in grades 3–6. Teachers in these situations face a formidable teaching situation.

During the conference, five general problem areas emerged (UNESCO, 1988):

1. Inadequately trained teachers
2. Scarcity of varied levels and types of materials
3. Lack of flexible and special types of curriculum organization for multigrade classes
4. Inadequate school facilities
5. Lack of incentives for teachers of multiple classes

Similar to preservice training in the United States, all countries participating in the conference reported that the teacher preparation for working in multigrade classrooms was identical to that provided for teachers of single-grade classrooms. In other words, individuals going into teaching were not prepared for teaching multigrade classrooms.

Ironically, the concerns and depiction of problems in these developing countries echo many of the concerns voiced in the United States and Canada by multigrade classroom teachers and rural educators. The most prominent similarities are the need for curriculum and program modifications that reflect the culture of the local community, and the needs of students within the demands created by the multigrade organization. In this regard, two recommendations emerged from the conference.

First, curriculum needs to be restructured so that it is community based. UNESCO (1988) concluded that the environment in which the community lives, the history and culture, and the utilization of skilled

persons in the community for improving the quality of education should be emphasized.

Second, innovative programs have a difficult time because the existing educational system is traditional, and this constrains perceptions of what may be possible. According to UNESCO (1988), the four walls of the classroom and the long periods demanded by programs in different countries somewhat inhibit and restrict the child's activities. Outdoor activities should be encouraged and experiences outside the classroom should be given a place in the curriculum.

Currently, the Education and International Development (EID) Group at the Institute of Education, London University, is carrying out research designed to raise awareness among policymakers, planners, and practitioners of the extent, problems, and needs of the multigrade teaching and learning environment. As the research proceeds, new findings will be posted on their Web page (www.ioe.ac.uk/multigrade/).

The project's objectives are to:

- Describe the extent of multigrade practice and the associated problems in Peru, Sri Lanka, and Vietnam
- Describe in detail how teachers currently organize teaching and learning in multigrade primary schools
- Conduct an intervention study with teachers on the organization and management of the multigrade classroom
- Make recommendations on multigrade teaching policy and practice

The project duration is from September 1998 to September 2001. In September 1999, the first workshop was held in the United Kingdom. The whole research team shared experiences, research findings, and expectations with each other, and contributions were made to the Oxford Conference on Education and Development as well as visits to multigrade schools in Wales. In September 2000, the researchers will reconvene in Vietman and Sri Lanka. Research related to each of the three countries is ongoing. A profile of each follows.

Multigrade Teaching in Peru

Currently, Peru has approximately 21,500 primary multigrade schools, 96 percent of which are located in rural areas. In terms of teachers, 41,000 teach in rural primary schools with multigrade classrooms, representing 69 percent of the total rural teaching force. Most of the schools in the countryside are multigrade (89 percent), which testifies to the importance of this type of school for improving the educational level of the rural population.

Among the most important characteristics affecting education are:

- The dispersion and isolation of the rural population.
- The poverty of the villages (60 percent of the population in rural areas are poor and 37 percent live in situations of extreme poverty).
- The family economy, which requires and includes children's work, as members of the family.
- Linguistic and cultural diversity (Spanish, Quechua, and Aymara are spoken as well as approximately 40 Amazonian languages). However, despite this diversity, the language of school is Spanish, and bilingual education programs have very limited coverage.
- In rural areas children begin school late, have a high rate of repetition, have periodic interruptions in their studies, and so forth, all of which increases the heterogeneity of the multigrade class.

The schools have severe deficiencies in infrastructure, access to services, availability of classroom furniture, equipment, and materials for teaching, and educational support. The teachers live in precarious conditions (no electricity, pure water, furniture, or adequate space in which to prepare their classes or to cook food); they have scarce incentives (a bonus of $13 per month), and scarce support and attention from high-level offices. Formal teacher training does not instruct teachers in multigrade methodology, and often teachers do not speak the students' language.

Multigrade Teaching in Sri Lanka

Multigrade teaching in Sri Lanka is common. It is common in rural and plantation schools where there are very few human and physical resources. A range of reasons for multigrade teaching could be identified in the Sri Lankan context, the most significant reason being nonavailability of one teacher per grade in these schools. The difficulty in access, sparse pupil populations that restrict the appointment of one teacher per grade, and difficult living conditions are the major factors contributing to teacher scarcity. Most of these schools have student numbers ranging from 50 to 150. According to the latest school census data by the Ministry of Education, there are 1,252 schools out of the 10,120 schools in Sri Lanka that have fewer than three teachers. Even the schools in urban areas face the challenge of organizing the teaching-learning situations similar to a multigrade setting during some parts of the day or during some days for various reasons (such as teacher absenteeism, teachers attending inservice training sessions, and so forth).

The national primary school curriculum is organized toward teaching in single-grade schools. Teachers in multigrade classrooms face the difficulty of organizing the national curriculum to suit their teaching and learning needs. Teachers are not given training to address such situations, as there is no provision in the teacher education curriculum for multigrade teaching methodology. Thus, the teaching in these schools is of very low quality. The student dropout rate is very high in these schools. Since the 1980s, the Department of Primary Education has attempted to try out multigrade teaching strategies in some selected schools under the UNICEF-assisted program for quality development of primary education. Very little research has been conducted on multigrade teaching in Sri Lanka.

Multigrade Teaching in Vietnam

There are many forms of multigrade classes in Vietnam, with two, three, four, or five different levels in any one class. So far, multigrade schools are quite widely used in ethnic minority areas with the purpose of providing primary education to disadvantaged children by bringing schools closer to communities where children live. Currently there are 2,162 primary schools with multigrade classes, accounting for 1.8 percent of total primary schools, and there are 143,693 students learning in multigrade classes, accounting for 1.38 percent of the school population.

Some problems include:

- There is a serious shortage of teachers, especially skilled teachers for multigrade teaching.

- Teachers of multigrade classes are working in difficult and isolated conditions.
- The training of teachers for multigrade classes does not meet the requirement in either quality or quantity.
- Teaching methods of the ethnic minority schools are very poor and unsuccessful. Students are not encouraged to be involved actively in the teaching-learning process.
- Most of the multigrade schools lack textbooks, guidebooks, and reference materials for students and teachers. Teaching equipment is very simple. Many multigrade classes are in very bad condition.
- Pupils face language barriers in learning and regular interruption in their education.

Quantitative Studies: Student Attitudes

Many affective gains have also been documented in multigrade research. Students show increased self-esteem, more cooperative behavior, better attitudes toward school in general, increased pro-social (caring, tolerant, patient, supportive) behavior, enriched personal relationships, increased personal responsibility, and a decline in discipline problems (Anderson & Pavan, 1993; Gutierrez & Slavin, 1992; Mackey, Johnson, & Wood, 1995; Miller, 1993; Pratt & Treacey, 1986; Stone, S.J., 1995; Uphoff & Evans, 1993). For example, preliminary results of an investigation by McClellan and Kinsey (1996) suggest that multigrade grouping helps children develop social skills and a sense of belonging. These affective gains are due in part to the fact that competition is minimized as children progress at their own pace and individual differences are celebrated (Anderson & Pavan, 1993; Kral, 1995; Stone, S.J., 1995). Older students in particular develop mentoring and leadership skills as a result of serving as role models and helping the younger children (Nye, 1993; Stone, S.J., 1995).

In her research, Barbara Pavan included a mental health component in 42 of the studies. These measures presented data on school anxiety and other attitudes toward school, self-esteem, and self-concept. While the results on school anxiety were unclear, pupils in multigrade classrooms had more positive attitudes than those in single-grade classrooms, although they were likely to laugh more and were less likely to raise their hands to get permission to speak. Students in multigrade classrooms scored higher than single-grade students on the Coopersmith Self-Esteem Inventory, except in one study with no significant differences. The same pattern was noted in studies that used the Piers-Harris Children's Self-Concept Scale.

Overall on mental health and school attitudes, 52 percent of the studies indicated multigrade schools were better for students. Forty-three percent indicated single and multigrade schools had a similar influence on students. Only 5 percent found multigrade worse than graded schools. Students in multigrade schools were more likely to have positive self-concept, high self-esteem, and good attitudes toward school than students in single-grade classrooms.

Longitudinal studies

On mental health measures, students from multigrade settings felt more positive or the same as graded students. After five years in one multigrade, open-space program, significantly fewer multigrade students were referred for discipline in junior high school.

At-risk students

Underachievers in multigrade schools had better self-concept, attitudes toward school, and academic achievement than underachievers in graded schools. Students of lower socioeconomic status also showed greater academic achievement when placed in multigrade schools.

Kathleen Cotton, a researcher funded by the U.S. Department of Education's Office of Educational Research and Improvement, researched

several educational studies in regard to developmentally appropriate practice and multigrade education. This included a 1993 analysis of 46 documents. Nine of the documents dealt with research on child development and learning; 11 focused on critiques of graded programs, descriptions of nongraded programs, and obstacles to implementing nongraded programs; and 26 reported the results of empirical research on the effects of nongraded grouping. She found that in general, the empirical research supported the use of nongraded programs. Cotton (1993) pointed out that most of the studies found that achievement in multigrade classrooms appeared to be no different than achievement in a single-grade classroom. The big differences were in attitude, behavior, social skill development, leadership skills, and parental attitudes. The studies that Cotton looked at all pointed to the multigrade classroom as providing significantly more positive outcomes. In addition, Cotton found that multigrade arrangements lend themselves to integrated curriculum, cooperative learning, cross-age tutoring, and learning in a more naturalistic setting.

Variation in grades, time of year, quality of instruction, and socioeconomic status, to mention only a few key variables, mediate student perceptions. Educational researchers studying student attitudes often have difficulty setting up studies where these variables can be adequately controlled. One compensating strategy is the aggregation of studies across setting and time. Practitioners can have greater confidence when many studies indicate similar results.

Viewed as a whole, the studies presented clearly indicate that students in multigrade classrooms tend to have significantly more positive attitudes toward themselves and school. A trend toward more positive social relationships is also indicated.

Summary

Clearly, these studies indicate that being a student in a multigrade classroom does not negatively affect academic performance, student social relationships, or attitudes. In terms of academic achievement, the data clearly support the multigrade classroom as a viable and equally effective organizational alternative to single-grade instruction. When it comes to student affect, the case for multigrade organization appears much stronger, with multigrade students out-performing single-grade students in more than 75 percent of the measures used. One wonders, then, why we do not have more schools organized into multigrade classrooms.

One response to this question is that we have nearly always organized classrooms by grade levels—that history and tradition dictate graded classrooms. This response seems a bit ironic, given the early dominance of the

multigrade school in U.S. education. However, there is a related but more compelling answer that can be found in the classrooms themselves and in information drawn from classroom practitioners.

The majority of quantitative studies reviewed focused on numerical student outcome data (i.e., test scores). Detailed contextual information describing what actually occurs in the classroom was not collected in these studies. We do not learn how teachers plan, prepare, and teach with multiple grades. As a result, we do not know how teachers feel and respond to being assigned to a combined classroom. How are students grouped? Are classroom management and organization different? Are there different strategies for teaching specific subjects? These are just a few of the important questions that must be understood in light of the multigrade environment in order to understand why multigrade classrooms are not more prominent. Answers to these questions will also provide insight into the requirements and training needs of the multigrade teacher.

The next section of this book will address these questions through a review of qualitative studies, which allow us to see the multigrade classroom from the practitioner's point of view.

Qualitative Studies: A View From the Inside

There is widespread agreement in the literature that negative attitudes to and perceptions of multigrade classes prevail. In general, teachers are said to prefer single grades because multigrade classes mean more planning, preparation, organization, and work; catering to a wider range of abilities and maturity levels; less time for meeting individual student needs and for remediation; less time for reflection on teaching; lack of relevant professional training; and less satisfaction with their work (Mason & Burns, 1995, 1996; Veenman, 1995, 1996). Some positive perceptions have been identified. These usually concern students' social skill development, opportunities for the enhancement of learning by the lower grade-level group through exposure to upper grade-level work, reinforcement of earlier learning for the upper grade-level students, and opportunities for children to learn through peer tutoring (Mason & Burns, 1995; Veenman, 1995).

Parent perceptions are also reported to be negative in general (Veenman, 1995), though more so in urban as opposed to rural communities. The chief parental concern is said to be about the level of student achievement. One of the reasons principals prefer to have single grades is the degree of parental concern about multigrade classes and the time and energy spent in dealing with those concerns (Mason & Doepner, 1998).

While principals' attitudes have also been reported to be negative in general, Mason and Doepner (1998) found principals to be not as strongly opposed to multigrade classes as teachers. Given their role in supporting system policy and dealing with the reality of student numbers, principals' actual perceptions might have been more negative than those they expressed. The chief disadvantages perceived by principals were the necessity for teachers to prepare two curricula, the strength of parental concerns, and the negative attitude of teachers. The advantages mentioned emphasized administrative ease in coping with student numbers, but also included comments about social skill development and learning from peers.

This section will begin by presenting and reviewing a study by Appalachia Educational Laboratory on the development and implementation of multigrade programs in four rural districts in Kentucky, from 1991 to 1995. The study sample of six schools and a specific cohort of students included two schools in central Kentucky, two in western Kentucky, and two in eastern Kentucky. Four of the schools are located in towns, while two are in outlying communities or rural areas. Five are located in county districts; one is in a small, independent school district. The schools range in size from about 80 students to about 500 students. One of the schools has fewer than 30 percent of students on free or reduced-priced lunch; the remainder range from 50 to 60 percent.

The study relies on interviews, observations, and review of documents to provide information. Principals and primary teachers at all levels were interviewed. Preliminary findings were later shared with administrators and

primary teachers at small group meetings. Input obtained during these meetings provided some new information and helped refine the analysis. At the end of the school year, a set of overall findings across the schools, as well as findings specific to each of the case study schools, was generated. In addition, lesson plans were analyzed to determine what content teachers covered and with what frequency each subject area was covered in the lesson plans.

This section, based on the entirety of teachers' work in each school, provides an overview of the problems and needs of rural school teachers in multigrade classrooms. The second section will focus on the multigrade classroom where three or more grades are combined and taught in a single classroom.

Establishing the Needs of the Multigrade Teacher

To understand multigrade program implementation in the study schools, one must recognize that Kentucky's primary program is but one component of a massive restructuring of the state's education system—one that reflects a new philosophy known as "systemic reform" (Murphy, 1990; Smith & O'Day, 1990). The Kentucky Educational Reform Act mandates that grades K–3 be replaced with a nongraded primary program. The rationale behind the nongraded program is that students will progress at their own rate through the primary years without experiencing the stigma of early school failure. This reform package shifted the focus from teacher input to student results. It gave schools autonomy to decide how to help students achieve reform goals, but held them accountable for student performance as measured by a performance-based assessment instrument, the Kentucky Instructional Results Information System (KIRIS). Thus, while primary teachers were required to implement new instructional, assessment, and grouping practices, they and their colleagues in higher grades were also held accountable for student performance. Schools, through their school-based decisionmaking councils, were given autonomy to decide how to help students achieve Kentucky Educational Reform Act goals.

Implementation of the Program: Getting Started

Radical change is a difficult and often messy process, an observation well-documented by the education change literature (Fullan, 1996). The implementation of the multigrade program in the study districts was no exception. With increased professional development, primary teachers made many positive changes in the early years. They were hampered, however, by uneven implementation timelines and lack of guidance from a state department undergoing reorganization. The multigrade program was implemented on schedule but without some of the supports built into the law. For instance, in three schools, the multigrade program was well underway before family resource centers were established. The extended school services program was available early on, but in most of the study schools it was offered only to students in the fourth or higher grades.

The early professional development available to primary teachers offered a variety of instructional approaches from which to choose. In addition, the state department offered some early "multigrade institutes" that focused on the philosophy behind the program. Teachers at these sessions, however, expressed impatience with discussions of the multigrade program philosophy. Because they were required to have a program up and running by the next school year, they wanted help with the practicalities of day-to-day operation of a multigrade classroom. Perhaps in response to such complaints, professional development soon began to focus almost exclusively on instructional practices in multigrade settings and was conducted by a variety of

providers, some of whom gave conflicting information as to what was appropriate multigrade practice. Because everyone (council members, principals, and teachers) was equally unsure as to what actually constituted appropriate practice, certain "myths" ("you can never use textbooks again," "you can't teach spelling or phonics," "you can't drill students on math facts") became prevalent and were implemented for a time.

In addition to the multigrade institutes, the state department of education provided early guidance to primary teachers with the publication of two documents that included both philosophical and practical information (Kentucky Department of Education, 1991, 1993). Because the department was reorganizing simultaneously with multigrade program implementation, consistent guidance from the state was difficult to maintain. Continual shifting of state department personnel responsible for the multigrade program added to the difficulty.

The changes in multigrade classrooms have not been readily accepted by all teachers. Many teachers feared that movement away from the traditional, teacher-directed scope-and-sequence approach to instruction would result in the young students learning less. Some teachers may have interpreted "allows [students] to progress at their own rate" to mean that students should not be challenged academically. As soon as the first group of primary students entered fourth grade, comparisons of them to previous fourth-graders were made. Parents and teachers often remarked that students coming out of the multigrade programs had weak spelling skills and hadn't memorized their math facts. To balance those complaints, parents and fourth-grade teachers also said that the exiting primary students were "better thinkers," asked more questions, and were better creative writers. However, a lingering perception among upper-grade teachers that the multigrade program does not adequately prepare students for the fourth grade persists.

Today

Changes in multigrade classrooms have been substantial, but movement toward greater implementation of the program has slowed considerably in the study schools. Generally, multigrade teachers seem to have settled into an approach comfortable for them, whether it equates to multigrade program implementation or not. The reasons vary from one school to the next. Four factors are prevalent at most schools: (1) emphasis on the critical attributes rather than on the overall purpose of the multigrade program, (2) legislative adjustments to the multigrade program, (3) lack of perceived fit between the multigrade program and results-based reform in grades 4–12, and (4) questions of efficacy, linked to teacher belief systems.

Obscured purpose of multigrade programs

A basic problem that plagued implementation of the multigrade program at the study schools from the beginning was that the program's overall goal quickly became lost in the single-minded focus on implementing the Kentucky Educational Reform Act's goals and attributes. Rather than using the goals as tools to help students progress at their own rate in preparation for fourth grade, many teachers in the study schools became preoccupied with the multigrade component of the program; they found it difficult to manage logistically. In addition, they did not appear to link multigrade grouping to a broader purpose. They did not view it as a tool to achieve continuous progress, but as an end in itself and one they did not necessarily agree with or know how to manage. Without a clear understanding of the purpose of multigrade/multiability grouping, many primary teachers lacked the motivation and skills to work through the organizational and management problems inherent in this approach. The more common practice, however, was to return to more traditional grouping practices.

Legislative adjustments

At the same time that primary teachers were struggling to figure out how to implement the multigrade program and why they should do so, legislative changes influenced program implementation. The unintended effect of the new timeline adopted in 1992, coupled with the educational goals becoming statutory requirements, was that teachers were thrust into the overwhelming demands of multigrade classrooms before the state provided them with curriculum guidance. They had received ample training in new instructional approaches, but had little time to reflect on them and figure out how to weave challenging content into multigrade settings in ways to help students learn. The result was that primary teachers worked feverishly to fashion a program that demonstrated implementation of the goals, but, under the surface, many fundamental issues—such as the program's philosophy and how the curriculum should align—had not been worked out.

The teachers studied were experiencing difficulty by the 1993–94 school year, their second year of multigrade program implementation. Teachers doubted the new methods they were using. They feared students might not be learning the basics, now that many primary teachers no longer relied on textbooks as the main curriculum and no clear curriculum had emerged to replace them. At the same time, primary teachers were under pressure from some parents who did not understand the new ways of reporting and from intermediate teachers who reported that students were coming to them unable to work independently and without mastery of important basic skills. Multigrade teachers were also struggling to manage a wide range of abilities and age levels in their classrooms, often without knowing how or appreciating the purpose of doing so. Thus, multigrade teachers had reached a point by the end of the 1993–94 school year where they strongly needed a boost of some sort if they were to push forward toward greater multigrade implementation.

Fit between the multigrade program and results-based reform

From the inception of the reform, teachers in the study schools expressed the view that the multigrade program was out of synch with what happens in grades 4–12. This confusion was a result of the different orientations of the reform at the primary level and in grades 4–12, and of the lack of understanding as to how the two approaches to reform were meant to work in harmony. In the multigrade program, the focus had been on eliminating student failure and on building student self-esteem and love of learning. This was accomplished through mandates about how multigrade classrooms should operate. In grades 4–12, the focus was on student acquisition of Kentucky Educational Reform Act (KERA) goals and expectations. Classroom practices were not mandated, but students demonstrate their learning on KIRIS. So multigrade classrooms focused on process, while grades 4–12 were more focused on content. Both sets of teachers experienced frustration over the orientation of the reforms. Multigrade teachers agonized about what students should learn before progressing to the fourth grade, while upper-grade teachers wondered how to teach to KERA goals and expectations.

Efficacy and teacher belief systems

Why would teachers return to more traditional instructional approaches to prepare students for a test that is designed to measure higher-order skills? Two factors seem to bear on this issue. First is the question of efficacy: to make a change of this magnitude, teachers need some evidence that the program will produce results that are significantly better than those produced by more traditional methods. Statewide assessment results suggest that the primary program produces higher Kentucky Instructional Results Information System (KIRIS) results, given that "elementary schools that include the primary program continue to set the pace for school improvement" (Kentucky Department of Education, 1996). Yet, there is no clear evidence that high KIRIS scores are linked to full implementation of the multigrade program. Moreover, non-academic benefits of ungraded programs such as improved student attitudes toward self, peers, and school (Miller, 1990; Pavan, 1992; Veenman, 1995) may not be immediately apparent in assessments (although they may be reflected in the future on measures of achievement or noncognitive factors, such as reduced dropout rate and improved school attendance). Thus, teachers currently lack solid evidence that faithful implementation of the multigrade program will produce better results for students.

Local Factors

The preceding sections share some of the findings observed across study schools. It should be noted, however, that the multigrade program evolved differently in each of the schools studied. In some schools, the faculty eagerly took advantage of new resources provided through KERA to make many changes intended to produce a multigrade, multiability, and continuous progress program. In other schools, the faculty members were wary about abandoning practices that had been successful for them, and the changes they made were cautious and exploratory. In all the study schools, educators have arrived at a comfortable mix of innovative and traditional practices, although the mix is different from school to school. Four factors were influential in the development of the multigrade program at the local level: principal leadership, teacher beliefs, school climate, and the school's performance on the state assessment program. At some schools, these factors facilitated innovation in the multigrade program; at others, the factors operated in ways that hindered implementation.

Principal leadership

The principal's ability to foster a common vision among the faculty and to build a supportive environment was a key factor in how multigrade programs were implemented. Stability was also important, with frequent changes in principals undermining school improvement, even when individual principals were strong.

Teacher beliefs

Whether or not teachers shared common beliefs about multigrade education, and what those beliefs were, strongly influenced the development of a school's multigrade program. Where teachers were united in their approach to the multigrade program and in having high expectations for students, the program generally appeared successful, whether the school was implementing the letter of the law or not. If teachers held widely varying beliefs, they had difficulty developing a common commitment to a primary program that might contribute to overall school improvement.

School climate

School climate refers to the general atmosphere of and mood at the school, including relations between teachers and administrators, camaraderie among staff and faculty, expectations for students, and attitude toward parents. In the study schools, a variety of situations producing positive school climates were observed. These included a tradition of academic excellence; strong principal leadership willingly accepted by teachers, students, and parents; "laissez-faire" principal oversight combined with strong teacher leadership; and active parent support or passive acceptance by parents of what the school was doing. Schools with less positive school climates exhibited characteristics such as poor relations between the principal and teachers and lack of camaraderie among teachers. In such schools, it was difficult for the faculty to maintain coordinated, consistent efforts to improve education.

Summary

The previous study illustrates that bringing all teachers on board with the philosophy underlying the multigrade program has been no small task. In some of the studies, the educators and parents alike support a traditional approach, have had success with it, and are unlikely to change that approach. In other schools, local conflicts and leadership issues have hindered the development of consistency in instructional approaches.

Some of the national researchers involved with previous multigrade primary programs have addressed the philosophical issue that is seen at work in the study schools. Pavan (1992), Anderson (1993), and Goodlad and Anderson (1987) all mention that "multigrade" is more a philosophy than a practice. Thus, teachers' beliefs must be aligned with the multigrade philosophy to have a successful multigrade program. Anderson goes so far as to say, "if too many teachers are uncomfortable with the philosophy and practices associated with multigrade, there is little point in taking the plunge." Tyack and Cuban (1995) suggest that structures such as graded schools have been in place so long that they are viewed as emblematic of a "real school." The support of parents, school boards, and the public must be enlisted to change something as deeply entrenched as the graded system of education.

During a training workshop for multigrade teachers in Oregon, several teacher and administrative practices supporting multigrade classroom implementation were identified. References to time and money as the most essential ingredients in creating multigrade classrooms were often made.

What do teachers need to know?

To meet the varied needs of multigrade students, teachers need indepth knowledge of child development and learning and a larger repertoire of instructional strategies than most single-grade teachers possess. They must be able to design open-ended, divergent learning experiences accessible to students functioning at different levels. They must know when and how to use homogeneous and heterogeneous grouping and how to design cooperative group tasks. They must be proficient in assessing, evaluating, and recording student progress using qualitative methods such as portfolios and anecdotal reports.

Multigrade teachers must be able to facilitate positive group interaction and to teach social skills and independent learning skills to individual students. They must know how to plan and work cooperatively with colleagues, as team teaching is commonly combined with multigrade organization. Finally, they must be able to explain multigrade practices to parents and other community members, building understanding and support for their use.

The critical judgment and common sense of teachers are essential ingredients in successful implementation. Methods that sound promising in theory may need considerable adaptation to be effective in practice. Ideally, teachers should have opportunities to observe competent models demonstrating multigrade methods, try them out in the classroom, receive feedback on their efforts, reflect on the experience, revise their plans, and try again.

What do administrators need to know?

Administrators should understand the principles underlying multigrade organization and developmentally appropriate instructional practices. In planning for implementation, however, knowledge about the change process may be even more valuable. Innovations often fail because policymakers give teachers insufficient time, training, and psychological support (Hord, et al., 1987). Effectively implementing a single innovation requires several years and multigrade teaching involves multiple, complex innovations.

Administrators must realize that many of the underlying assumptions of multigrade teaching conflict with deeply ingrained assumptions underlying traditional age-graded instructional methods. Miller (1994) observes that for many teachers, "unlearning powerfully held notions about how children learn" is an essential part of implementing multigrade practices. This process is demanding, even for the most receptive and flexible individuals.

Multigrade instructional and organizational skills differ greatly from those used in the single-grade classroom. Veterans may feel as insecure as first-year teachers as they struggle to learn these new skills. In one school, Miller found that teachers with more experience seemed to feel even greater frustration in the early stages of change.

To help teachers weather this stressful transition process, administrators must provide psychological support as well as technical assistance. They must create a school culture that supports teacher learning, an environment in which it is safe to risk making mistakes. Without such support, many teachers will retreat to safe, familiar, age-graded methods.

What is the principal's role?

The principal plays a key role in creating this supportive school culture. The principal must provide teachers with opportunities to learn multigrade teaching methods, monitor the progress of implementation, and give teachers praise, feedback, and suggestions. He or she should be adept at facilitating positive, cooperative interactions among teaching team members.

The principal must ensure that all teachers feel supported and endeavor to maintain a sense of community within the school. Innovative efforts by small groups of teachers can threaten to split teaching staff into "pro" and "con" subgroups; avoiding intra-school strife can resemble a delicate tightrope walk. The principal must also deal with teachers who are unwilling or unable to make the transition. Finally, the principal must build support for multiage practices in the larger community.

Facilitating this transition requires sophisticated leadership and interpersonal skills, as well as personal characteristics such as patience and empathy. But most administrators receive little or no formal training in these skills. Those who possess them have generally learned them from experience, says Fullan (1996). Principals need opportunities for professional development and for interaction with colleagues who are facing similar challenges. They need support from district administrators as they develop these facilitative skills.

Table 1 provides a summary of the implications for multigrade instruction drawn from the studies. Many other studies conducted both in the United States and abroad have produced similar findings.

TABLE 1: Implications for Teaching in a Multigrade Classroom

What do teachers need to know?	What is the principal's role?	What do administrators need to know?
1. Indepth knowledge of child development	1. Creating a supportive school culture	1. A good understanding of the principles underlying multigrade organization and developmentally appropriate instructional practices
2. Larger repertoire of instructional strategies than most single-grade teachers possess	2. Provide teachers with opportunities to learn multigrade teaching methods	2. Knowledge about the change process
3. Ability to design open-ended divergent learning experiences accessible to students functioning at different levels	3. Monitor implementation progress, and give teachers praise, feedback, and suggestions	3. Provide teachers with psychological support as well as technical assistance
4. Understand and use homogeneous and heterogeneous grouping	4. Build support for multigrade practices in the larger community	4. Create a school culture that supports teacher learning, an environment in which it is safe to risk making mistakes
5. How to design cooperative group tasks		
6. Proficient in assessing, evaluating, and recording student progress using qualitative methods such as portfolios and anecdotal reports		

How Important Are Sufficient Time and Money?

Sufficient time and money are essential ingredients in creating and maintaining the multigrade classroom. Multigrade teaching takes years to master, and long-term staff development is expensive. So is hiring substitutes to enable teachers to attend workshops and plan changes with their colleagues. Other expenses include developmentally appropriate instructional materials for children, books and videotapes for adult learners, and outreach efforts to build community support.

Effective multigrade teaching is more time-consuming than age-graded teaching. One group of Oregon teachers listed daily preparation time, weekly team planning time, monthly inservice and curriculum development time, and occasional staff development time as essential on an ongoing basis (Oregon Department of Education and Ackerman Laboratory School, 1994). Creative scheduling can free up some time, but hiring additional teachers or paraprofessionals will likely be necessary. Raths and Fanning (1993) also suggest teachers be given computers for the "incredibly labor-intensive" clerical aspects of qualitative assessment.

Simply telling teachers to "squeeze it all in somehow" is not an option. Teachers often donate immense amounts of unpaid personal time during implementation, but few can maintain such sacrifice on a long-term basis, nor should they be asked to. Administrators must accept the challenge of communicating to the public that educational quality cannot exist without adequate financial support, and enlist their aid in providing these resources.

The Evergreen Elementary School in Holmen, Wisconsin, recently incorporated some multigrade classrooms. The school has some multigrade classrooms, mixed with some traditional graded classrooms. It began a multigrade program called Project K.I.D. (Kids Independently Developing) in 1994. The teachers involved were sent to inservice training programs around the area where they could learn more about multigrade teaching. They read and did research on what would be involved in becoming multigrade teachers. After a year of learning more about multigrade classrooms, they felt they were ready to try. They then began a journey that, while not without its pitfalls, ended very successfully. From this journey, they put together a summer inservice in 1995 for other teachers interested in embarking down the same path.

During the 1995 Project K.I.D. summer inservice, the instructing teachers and participating administrators were very enthusiastic about their programs. They spent two days promoting multigrade education as another way to reach children in the classroom. They were excited about their teaching and excited about sharing it with those who would attend their inservice. They listed a 10-step process for setting up a multigrade program (Project

K.I.D., 1995). These steps are very helpful to new schools, administrators, and teachers who are looking into setting up multigrade classrooms.

1. Understand what multigrade means. Do the research.
2. Discuss multigrading with administrators, parents, and other teachers.
3. Determine the age breakdown for each classroom unit.
4. Condense the curriculum into a one-year, realistic set of goals. Concentrate on mandated goals and objectives for the oldest child in the room.
5. Match eligible children into each age unit. Be conscious of social and emotional growth as well as cognitive growth.
6. Check the heterogeneity of the classroom mixture. Each room must contain a mixture of ages, ability levels, and social needs.
7. Avoid placing all discipline problems or lower level children in the same classroom.
8. Determine the teaching strategies that will best serve the mixture of students. These will change as class groupings change.
9. Design special project areas or learning centers that can cover a wide range of ability levels. These should be problem-solving, hands-on experiences.
10. Determine three evaluation strategies that will provide authentic, diagnostic information for you and the parents. Be selective in trying everything that is new.

Multigrade classroom instruction places greater demands on teachers than teaching in a single grade. To be effective, teachers need to spend more time in planning and preparation. This often means modifying existing grade-level materials to ensure that students will be successful. In addition, there are many demands that are simply conditions of rural life. Although rural living can have many rewards, these demands, as described in Table 2, affect the rural teacher. When considered along with the requirements of the multigrade classroom, it is clear that the rural, multigrade classroom teacher has a demanding, but potentially very rewarding, job.

TABLE 2. Educational Issues Unique to Rural, Small Schools

Classroom Factors	• Classes are often made up of more than one grade level • The student-teacher ratio is often smaller • Teachers typically have three to five different preparations daily • Teachers often teach classes for areas in which they are not prepared • Equipment, instructional materials, and supplies are limited or dated • Resources for student use (media and library related) are limited • Lack of support exists for teachers in dealing with special needs children
School Factors	• Teachers are often responsible for extensive administrative, supervisory, extracurricular, and maintenance responsibilities • Junior and senior high schools are often combined • Budgets are often poor (supplies and materials are outdated) • Teachers are more isolated from ongoing staff development opportunities • Little or no inservice support is provided • Limited professional development information exists nearby • There are fewer defined rules and policies (a more informal administrative style) • Salaries are often lower
Socio-Cultural Factors	• Adequate housing may not be available. • Buying and selling property is more difficult. • Private lives are more open to scrutiny. • Cultural and geographical isolation and/or cultural/linguistic isolation are more prevalent. Services such as medical and shopping may be quite distant. • Parents have high expectations for teacher involvement in community activities. • Greater emphasis is placed on informal and personal communications. • Loneliness • Adjustment to extreme weather conditions

Adapted from (Miller, 1988, p. 3)

Instruction in a Multigrade Classroom With More Than Two Grades

If the combination classroom seems like a formidable challenge to most teachers, then the classroom or school that combines three or more grades must appear to be an insurmountable obstacle. How can one teacher juggle all those grades, with their wide levels of student maturity, ability, and motivation? How can one teacher possibly prepare for the many curricular areas, meet individual student needs, and have the time to eat lunch? Teaching a broad range of grade levels in the same classroom is complex and demanding. But there are many successful teachers and students who are living proof that mixed-grade classes are a viable organizational structure for learning. Although empirical studies of these classrooms are quite scarce, enough descriptive literature has been compiled to illustrate both the complexity and the rewards of the multigrade classroom.

Dodendorf (1983) conducted a study of a rural Midwestern two-room school where 35 students spanning five grades were taught. The classroom was organized into two rooms. The "lower" room contained students in grades K–4, while the "upper" room contained students in grades 5–8. All aspects of classroom life were carefully observed, and students' achievement test scores were compared with those from urban schools. Five positive environmental characteristics emerged from the observational data:

1. School routines: These were structured so that children began the day, completed workbook assignments, met in small groups, went to the library, told stories, and so forth, with a minimum amount of noise and disruption. In part, this was due to a scheduling tree where each student's assignment was posted. It was also due to the highly predictable nature of class routines. For example, spelling tests were given all at once with the unique words for each grade given in turn.

2. Group learning: Each grade met with the teacher twice a day. When nongrouped students needed help, they sought out an older student first and then waited at the teacher's station. Aides from the community might have been helpful, but the teacher felt that confidentiality was a problem.

3. Interdependence: This area was found to be the most striking quality in the school. Younger children often approached older children for help. Mixing of ages and grades was seen both in the classroom and at recess.

4. Independence: Observed work habits of children indicated a high degree of self-discipline. They had specific assignments and timelines to meet. They passed out corrected workbooks without teacher prompting.

5. Community involvement: Community members frequently visited the school. Mothers cooked hot lunch once a month

and planned holiday parties. The board chairman stopped by to see if there were any needs. There did not appear to be a clear demarcation between the school and the community. Student attitudes toward new people entering the classroom were always hospitable and friendly. An example was the way kindergartners were welcomed into the classroom. Older students were warm and helped them, frequently explaining what was being worked on.

Results were favorable for the rural school. In terms of academics, students performed nearly the same as their urban counterparts. Only on a social studies subtest was there any significant difference. In terms of classroom climate and social relationships, the author noted that:

> *Several advantages accrued for children and their parents in this rural school. The observed positive qualities far outweighed the disadvantages, and, more importantly, the values emphasized in the school reflected the community's values. This match of values is rarely achieved in heterogeneous urban schools. Value congruence between home and school certainly fostered a secure, stable world for these children to grow up in (p. 103).*

Clearly, Dodendorf's study suggests that the five-grade classroom can be a socially and academically effective learning environment for students. The implication, however, is that success depends on the ability of the teacher to organize and manage instruction so that cooperation, independence, and a motivation to learn become environmental norms.

Martha Young, a county superintendent with Mid-Rivers School District, describes the history of Montana's country schools since the early 1900s. Of particular interest is her description of two very small one- and two-room schools. Mid-Rivers School has nine students covering a span of six grades. Students are given responsibility for a large share of housekeeping tasks on a rotating basis: keeping the room clean (janitor), taking care of paper and supplies (supply clerk), checking out books (librarian), ringing the bell, monitoring play equipment, organizing the calendar, leading the flag salute, and sharpening pencils. Each week a student is honored by not having duties for the week. Developing self-reliance, responsibility, and independence in students enables the teacher to better meet individual student needs. It also develops a strong sense of community and cooperation within the classroom (personal communication).

In order to meet the needs of all students at their respective instructional levels, the teacher relies heavily on scheduling and cross-age tutoring. For example, the student who is the acting librarian that week reads a daily story to younger children while the teacher works with the older students.

Students might also work together to complete tasks while the teacher meets with students individually. Reading, math, English, and spelling are

handled in this individualized manner. All other subjects are taught as a group, with each student working at his or her particular level; art, social studies, science, and music projects are frequently employed. The entire school also sings together, plays recorders, has a marching band, and publishes a school newspaper. Because the school is so isolated, it serves as the center of the community. Parents provide help with track meets, field trips, and special programs.

Sand Springs School is slightly larger than Mid-Rivers with two teachers serving grades K–10. Students are divided into a K–4 class and a 5–10 class. There is an aide in the lower level who teaches kindergarten under the teacher's supervision. This frees the teacher to work with the older students. An additional aide comes in several times a week and provides time for the teacher to work on academic subjects. On the aide's days off, the teacher works on music, arts, crafts, and physical education. A similar pattern of organization is followed with the upper-level class. Because of the complexity of subject matter in the upper-level class, three aides work under the teacher's supervision.

In the lower-level class, the teacher organizes instruction around key concepts that can be introduced to all students and then individualized to the different levels in the class. For example, time was explained to all the students. The youngest ones drew hands on clocks while the teacher gave instruction on minutes to other students. Special activities also serve as basis for total grouping activities: fire prevention week led to a play, Valentine's Day led to an all-school party, and the Christmas program involved everyone. For Columbus Day and Thanksgiving, students all worked together on special projects. Students were also grouped by ability so that the talented second-grader could work with the fourth-grader, or the slower student could work with younger students for special skills.

In both schools, the teachers have taken full advantage of the flexibility afforded by a multigrade classroom. The teachers have used a two-phased approach to group instruction. In the first phase, they introduced a concept to the entire class (across all grade levels). This allowed for cross-grade interaction with the concurrent benefits of younger students learning from older ones. It also is a more efficient use of teacher time. In the second phase, the teacher has students engaged in closed-task activities at their respective ability levels. Students can also be easily moved from one ability level to another as needed, without feeling the stigma that is usually associated with out-of-grade placements.

Special events such as holidays, field trips, or any activity that does not require strict grouping by ability (such as closed-task skills) are organized around total class participation. Every member of the class contributes and shares in the successes of everyone else. Students also learn to be responsible and self-directed, to work independently, to provide help to others, and

to receive help when needed. This independence is critically important because it enables the teacher to work individually with students.

Betsy Bryan's (1986) story is unique. She completed her teaching degree in 1980 from an Eastern college. While getting her teaching degree, she student taught in a small, rural two-room school and became convinced that she wanted to teach in a similar situation. Unable to secure a position on the East Coast, she went to New Mexico and obtained a position as a K–1 teacher (so she was told by the school board). With difficulty, she found a house to live in and then school began. However, things had changed since her interview with the school board. She now had a class of 18 students ranging from ages five to nine:

> *Developmentally they ranged from kids who barely spoke and still wet their pants to children who were ready for third-grade work. Some spoke Spanish and some didn't. There were child neglect cases and others who came from caring homes. A few had learning disabilities while most learned easily and delighted in it (p. 3).*

To make matters even more formidable, Bryan had no "professional direction or support, limited materials, and little experience" (p. 3). She was not supervised or expected to maintain grade-level differences. However, she had student taught with two master rural teachers who provided examples upon which she could pattern her own teaching.

At first, in order to provide structure and order, she stuck to the basal reader and the other available materials. As the year progressed and she developed a relationship with her class, Bryan began developing her own materials, "scrounging through garage sales for children's books, and visiting a teacher center 100 miles away to get ideas and supplies." Unfortunately, Bryan does not provide sufficient detail to allow the reader to know how she managed instruction or curriculum. She does tell us that national test scores revealed her students were performing above the national average. Although positive about her first teaching experience, Bryan left after only one year.

Unlike the Dodendorf (1983) study or the description of the two rural Utah schools, Bryan found herself an outsider in an unknown teaching situation. She faced difficulty finding housing, a sudden change in her teaching assignment, feelings of isolation from other teachers and the community. If Bryan had remained, would her experience have turned out more like that described by Dodendorf? From her own words, it seems as if conditions in the school and community preempted that possibility:

It appears that the district [I] taught in [was] full of conflict and lacked leaders who could solve these conflicts. The staff were from diverse backgrounds and had widely different motivations and philosophies. There were bound to be problems and yet neither the community nor the administration nor the teachers were able to resolve them. [The district] lacked a sense of direction and demonstrated little concern for their teachers. Other factors that influenced [my] decision to leave included living conditions and the loneliness [I] felt trying to fit into [a] rural close-knit community (p. 5).

Ann Hoffman's (1982) story is quite different from that of Betsy Bryan (1986). Hoffman's school was smaller than Bryan's, but her class size and range of students were similar. When Hoffman first began to teach in the Kingvale, Utah, two-room school, she had 15 students in grades K–3 and no aide, but after three years her class grew to 27 students and an aide was hired. Hoffman says that when she first began teaching in Kingvale, "we had a wonderful time. In the past two years the class load has grown. We still have a wonderful time but a lot noisier one!"

Hoffman (1982) describes in detail how she organized her classroom to accommodate student needs. Clearly, her planning and organization are well in advance of instruction. Before school begins, she reviews science and social studies texts for upper-grade students and makes a list of what must be covered, by week, for the entire year. Materials and films are ordered at this time. She believes preparation must be done well in advance of the students.

Hoffman distinguishes between those subjects that lend themselves to total class instruction and those that must be taught on a more individualized or graded basis. For example, health, storytime, literature, drama, and music can be taught to the entire class. These subjects are also considered "elastic" in that they can be altered, combined, or skipped depending on circumstances. Consistent time is scheduled for high-priority, skill-based subjects such as reading and math. For example, reading and math are taught in the morning, with students working independently while the teacher holds conferences with and instructs other students. First grade is taught as a group, but the other grades are primarily individualized. Index cards are used to track individual progress. Reading is taught for 70 minutes daily.

What is clear from Hoffman's account of her classroom is that she is well organized and has a clear structure for the way instructional events unfold. Students know what is expected, and classroom routines are well established. There is also a sense of the novel and interesting. There are daily student oral presentations (across grades) of stories, poems, reports, and current events. A learning center on magnets and a center with special books for students can be found. Friends drop into the classroom and may become part of a lesson. Hoffman says she tries to keep her room interesting, but she notes the multigrade environment is not all roses:

> *I can't pass a problem child on to another teacher the next year. I can't use the same old art ideas year after year. Science, social studies, music, ... every subject has to be completely revamped each year.*
>
> *Films are boring when seen for several years in a row and so have to be changed. Room decorations must be new and different. I can't get new ideas from the teachers next door. I have to be super-prepared or I'm in for a very hectic day (p. 45).*

Yet, despite these challenges, Hoffman stresses that the strengths far outweigh the disadvantages:

> *It is a most satisfying feeling to watch a kindergartner mature into a hard working third-grader. A child can easily be placed ahead or back in areas in which he excels or is having trouble. Older children can work with the younger children. We have a ski program for physical education. The parents are friendly and helpful (p. 45).*

Summary

The multigrade classroom and one-room school are alive and well in rural America. Stories like Ann Hoffman's from Kingvale abound if someone is there to hear them. Unfortunately, the story told by Betsy Bryan is often heard instead. Problems of inadequate facilities, poor leadership, and limited resources have been used as evidence for seeking consolidation. Without question, teaching in a multigrade classroom with more than two grades is a demanding task requiring a special type of individual. But it also requires training, community understanding, and support.

Many educators mistakenly think multigrade grouping is the first—or even the only—element that needs to be changed. But according to Anita McClanahan, early childhood education coordinator for the Oregon Department of Education, mixing ages isn't the magic key to improvement. "You have to change your methods of instruction. It's what we do with the groups of children that makes a difference" (Gaustad, 1994).

As evidenced in the descriptions presented, the multigrade teacher must be well-organized and put in lots of preparation time. Educators have much to learn from these teachers about classroom management and instructional organization.

The multigrade classroom is an environment where routines are clearly understood and followed. Students learn to be self-directed learners, often working alone or in small groups. They must also be able to help others and serve as positive role models. A positive, family-like atmosphere often must be developed—one in which cooperation and solidarity among all students predominate. Without these elements, a multigrade teacher could not manage the vast variability in student needs. Bruce Barker (1986) does an excellent job summarizing the characteristics and working conditions that the multigrade classroom teacher faces:

She lives in a remote setting in either the Midwest or far West, enjoys teaching in a small school ... she teaches an average of 11 students ranging in grades one through eight, works an average of about nine hours a day in tasks related to instruction, yet is also the school custodian and school secretary. She may even prepare the school lunch and drive the school bus. The assignment to teach in a one-teacher school may be the most demanding of all positions in the profession, but for those who love young people and enjoy teaching, it could well be the most rewarding (p. 150).

Conclusion

This review of the research on multigrade classroom instruction focused on answering two questions:

1. What effect does multigrade instruction have on student performance?

2. What kind of teacher preparation or training is needed to be an effective teacher in a multigrade classroom?

In addition, these two questions implicitly ask what implications the research literature has for districts currently operating or considering multigrade classrooms.

In terms of academic achievement, multigrade students do not appear to fare any better or worse than single-grade students. Some research evidence does suggest there may be significant differences depending on subject and/or grade level. Primarily, these studies reflect the complex and variable nature of school life. However, there are not enough of these studies to make safe generalizations regarding which subjects or grade levels are best for multigrade instruction.

The evidence drawn from research focusing on affective student measures provides a strong case supporting multigrade instruction. Student attitudes toward school and self tend to be more positive in the mixed-grade classrooms. Multigrade students also interact more with students of other ages and have more positive attitudes toward peers than single-grade students. Several factors appear to play a part in these differences.

In the multigrade classroom, student developmental and academic differences can be handled more easily than in a single-grade class. Multigrade students regularly interact with a wide range of students. This increases the likelihood that individual students can find an academic or developmental match in their class. For example, the immature upper-grade student may find a lower grade student to befriend without the stigma generally associated with "hanging around with younger students."

In a similar manner, the teacher can have lower-performing students from an upper grade work with students in the lower grade without the burden associated with out-of-grade-level placement. Students also learn the advantages inherent in behaving cooperatively with older and younger students, and they have a greater opportunity to develop responsibility by modeling and helping other students.

On face value, students in multigrade classrooms would appear to be better off than students in a single-grade classroom. However, the evidence suggests that from the point of view of school organizational norms and levels of teacher preparedness, the multigrade classroom generally serves as a temporary remedy to school enrollment and financial concerns.

In other words, most multigrade (especially combined-grades) classrooms are viewed as temporary remedies to be endured for a year (or so) until things return to "normal." Lest we too quickly forget our educational heritage in the district school, there are still more than 1,000 one-room schools where three or more grades are taught together (Murphy, 1990). But the tide of teacher and administrative opinion strongly favors organizing schools by grade level.

Graded classes are believed to be more efficient and easier for the teacher. This assumption is based on the notion that students at a given administrative grade level are all at the same ability level. In other words, a fourth-grade teacher only has students functioning at the fourth-grade ability level. Most educators know that at any given grade level there is a span of student ability (Pratt & Treacey, 1986). This variability can often be seen in the form of multiple math and reading groups with most other subjects being taught at the grade level. In larger metropolitan schools, ability differences are even further distinguishable by those students who attend Title I, special education, or talented and gifted programs. In still other classrooms, no distinctions may be made. Instead, all students are taught as if they were at the same ability level. In reality, many single-grade classrooms are quite similar to the multigrade classroom. Except in those rare cases of tight homogeneity of the student population in a community, there may be more similarities than differences between multigrade and single-grade classrooms.

The skills needed to effectively teach the multigrade and the single-grade (multilevel) classroom appear to be quite similar. The differences between the two classrooms may be more a product of socialization and expectation than of fact. Clearly, students are harmed when the teacher fails to recognize and teach to the individual differences in a classroom. It also is apparent that teachers are harmed when they have not been adequately prepared to teach students with varying ages and abilities. Wragg (1984) does an excellent job summarizing these instructional implications when he describes the results of a large-scale study of teaching skills:

> *There seemed to be much less confidence among teachers about how best to teach bright pupils and slow learners in mixed-ability classes than in any other aspect of professional work we studied during the project. Most mixed-ability teaching was to the whole class, and some schools made almost no use at all of cooperative groupwork. Even the teachers we studied who were regarded as successful found it very exacting to teach a mixed-ability class well, and were less sure about their teaching of bright pupils than about other aspects (p. 197).*

What does the research tell us regarding the skills required of the multigrade teacher? Pratt and Treacey's (1986) observation suggests that the skills needed in the single-grade, multiability classroom are similar to those of the multigrade teacher. With an increase in the number of grades

taught in a single classroom, a greater demand is placed on teacher resources, both cognitive and emotional. Six key variables affecting successful multigrade teaching were identified from the research:

1. Classroom organization: arranging and organizing instructional resources and the physical environment in order to facilitate student learning, independence, and interdependence
2. Classroom management and discipline: developing and implementing classroom schedules and routines that promote clear, predictable instructional patterns, especially those that enhance student responsibility for their own learning; developing independence and interdependence is also stressed
3. Instructional organization and curriculum: planning, developing, and implementing instructional strategies and routines that allow for a maximum of cooperative and self-directed student learning based on diagnosed student needs; also includes the effective use of time
4. Instructional delivery and grouping: instructional methods that will improve the quality of instruction, including strategies for organizing group learning activities across and within grade levels, especially those that develop interdependence and cooperation among students
5. Self-directed learning: developing skills and strategies in students that allow for a high level of independence and efficiency in learning, individually or in combination with other students
6. Peer tutoring: developing skills and routines whereby students serve as "teachers" to other students within and across differing grade levels

In the multigrade classroom, more time must be spent in organizing and planning for instruction. This is required if the teacher wants to meet the individual needs of students and to successfully monitor student progress. Extra materials and strategies must be developed so that students will be meaningfully engaged. This allows the teacher to meet with small groups or individuals.

Since the teacher cannot be everywhere or with every student at the same time, the teacher shares instructional responsibilities with students within a context of clear rules and routines. Students know what is expected. They know what assignments to work on, when they are due, how to get them graded, how to get extra help, and where to turn them in.

Students learn how to help one another and themselves. At an early age, students are expected to develop independence. The effective multi-

grade teacher establishes a climate to promote and develop this independence. For example, when kindergarten students enter the classroom for the first time, they receive help and guidance not only from the teacher, but also from older students. Soon, they learn to be self-directed learners capable of solving many of their own problems. They become self-sufficient. Kindergartners see how other students behave, and they learn what is expected of them. Because older students willingly help them, kindergartners also learn cooperation and that the teacher is not the only source of knowledge.

Instructional grouping practices also play an important role in the successful multigrade classroom. Grouping is a strategy for meeting teacher and student needs. The teacher emphasizes the similarities among the different grades and teaches to them, thus conserving valuable teacher time. For example, whole-class (across grades) instruction is often used because the teacher can have contact with more students. However, whole-class instruction in the effective multigrade classroom differs from what one generally finds in a single-grade class.

Multigrade teachers recognize that whole-class instruction must revolve around open-task activities if all students are to be engaged. For example, a teacher can introduce a writing assignment through topic development where all students brainstorm for ideas. In this context, students from first through eighth grade can discuss and share their different perspectives. Students soon learn how to listen to and respect the opinions of others. For the older students, first-graders are not simply "those little kids from the primary grades down the hall." They are classmates. Learning cooperation is a survival skill—a necessary condition of life in the multigrade classroom. Everyone depends on each other, and this interdependency extends beyond the walls of the school to include the community.

But teaching in the multigrade classroom also has many problems. It is more complex and demanding than the single-grade classroom. A teacher cannot ignore developmental differences in students or be ill-prepared for a day's instruction. Demands on teacher time require well-developed organizational skills. Clearly, the multigrade classroom is not for the timid, inexperienced, or untrained teacher.

Implications

For districts or schools contemplating or currently operating multigrade classrooms, there are important implications drawn from the research:

1. Student performance:
    - Students in multigrade classrooms perform academically as well as students from single grades.
    - Students in multigrade classrooms generally have more favorable attitudes toward their peers and school than students from single-grade classrooms.
    - Student performance is mediated by the level of teacher expertise. In other words, multigrade instruction requires a high level of skill in classroom management and instructional organization, and a broad repertoire of instructional strategies. Without adequate training and experience, student performance will likely suffer.
2. Training in how to teach in a multigrade classroom is critically important for success. However, training should be grounded in a field-based experience where the novice has the opportunity to observe and teach with an effective model. This should be coupled with ongoing staff development.
3. The concept of multigrade instruction is more likely to be seen as important if linked to the concept of the multilevel class. For example, prospective teachers are more likely to take a course entitled "teaching multiple ability levels in the classroom" than "teaching in the multigrade classroom." When most new teachers seek employment, they expect to work with a single grade level. However, circumstance can change that and place the teacher in a combined classroom.
4. The skills of the effective multigrade teacher are worth emulating in the single-grade classroom.
5. If a district deems it necessary to combine grades, administrators should be apprised of how roles will change and what is to be expected, especially in the following areas:
    - Increase in planning and materials preparation
    - Increased level of stress because there is less time to reflect on teaching
    - Support and guidance regarding curriculum alignment
    - Potential for increased pressure from parents

- Importance of communicating to the teacher what is expected in terms of planning and grade differentiation
- The effect of grade differentiation versus the development of across-grade solidarity and cooperation
- Importance of ongoing support for success
- Value of recognizing teacher efforts

6. Multigrade instruction has a long, successful tradition and, based on research evidence, is a viable approach to school organization.
7. There are definite characteristics of successful multigrade teachers that should be considered in teacher selection:
   - Well-organized
   - Creative and flexible
   - Willing to work hard
   - Resourceful and self-directed
   - Willing to work closely with the community
   - Strong belief in the importance of cooperation and personal responsibility in the classroom with the ability to develop these characteristics in students
   - Prior successful experience at the grade levels to be taught

Risks and Concerns

Every method of grouping children has risks. One concern with multigrade grouping is ensuring that younger children are not overwhelmed by older or more competent students, in any class. Teachers have an important role to play in maximizing the potential benefits of age and ability mixture. For example, they can encourage children to turn to each other for explanations, directions, and comfort in times of stress. They can turn to older students to read words, paragraphs, and stories to younger children, and to listen to younger students read.

In addition, teachers can encourage older children to take responsibility, either for an individual younger child or for younger children in general. Teachers can encourage older children not to gloat over their superior skills, but to take satisfaction in their competence in reading to younger children, in writing things down for them, in explaining things, in showing them how to use the computer, in helping them find something, in helping them get dressed to go outdoors, and so forth.

Teachers can show older children how to protect themselves from being pestered by younger children, for example, by saying to the younger children, "I can't help you right this minute, but I will as soon as I finish what I am doing." Teachers can also help younger children learn to accept their own limitations and their place in the total scheme of things, as well as encourage older children to think of roles and suitable levels that younger students could take in their work or activities. The basic requirement is that the children be respectful of each other.

When teachers discourage older children from calling younger ones "cry babies" or "little dummies," they help resist the temptation of age stereotyping. Every once in a while a teacher says to a misbehaving first-grader something like "that behavior belongs in kindergarten." The teacher then expects them to be kind and helpful to the kindergartners during recess, when they've just heard that kindergartners are a lower form of life! A mixed-age group can be a context in which to teach children not only to appreciate where they themselves so recently were, but also to prize their own progress and to develop a sense of the continuity of development.

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